CLAIMS:

1. A thermally zoned substrate holder, comprising:

a base having top and bottom surfaces, the top surface configured to support a substrate;

a plurality of temperature control elements inside the base, each element having a top surface and a bottom surface;

at least one insulator, having a lower coefficient of thermal conductivity than a material of the base, the at least one insulator being disposed between the plurality of temperature control elements and substantially thermally separating the plurality of temperature control elements.

2. The apparatus according to claim 1, wherein first and second of the plurality of temperature control elements receive separate fluid flows.

3. The apparatus according to claim 2, wherein at least one of the fluid flows is substantially circular in the plane of the top surface of the substrate holder.

4. The apparatus according to claim 2, wherein the fluid flows are concentric about a central axis of the substrate holder.

5. The apparatus according to claim 2, wherein the at least one insulator is concentric with the fluid flows.

6. The apparatus according to claim 1, wherein the plurality of temperature control elements each include at least one heating element.

7. The apparatus according to Claim 6, wherein each heating element is concentric about a central axis of the substrate holder.

8. The apparatus according to Claim 7, wherein the at least one insulator is concentric with each heating element.

9. The apparatus according to claim 1, further comprising temperature detectors disposed at predetermined positions in the temperature control elements.

10. The apparatus according to claim 2, further comprising temperature detectors disposed at predetermined positions in the temperature control elements.

11. The apparatus according to claim 1, wherein the temperature control elements are radially extending.

12. The apparatus according to claim 1, wherein the temperature control elements comprise radially extending elements and azimuthally extending elements.

13. The apparatus according to claim 1, wherein the at least one insulator comprises a gas-filled chamber.

14. The apparatus according to claim 1, wherein the at least one insulator comprises a vacuum-filled chamber.

15. A thermally zoned substrate holder, comprising:

a base having top and bottom surfaces, the top surface configured to support a substrate;

a plurality of temperature controlled passages inside the base, each passage having a top surface and a bottom surface;

insulation means, having a lower coefficient of thermal conductivity than a material of the base, for substantially thermally separating the plurality of temperature controlled passages, the insulating means being disposed between the plurality of temperature controlled passages.